

AMENDMENT TO THE CLAIMS

Please cancel all pending claims, i.e. claims 1 – 19, without prejudice or disclaimer of the subject matter recited therein and please enter claims 20 – 39 for consideration by the Examiner.

The claims in this listing will replace all prior versions, and listing of claims in the application.

Listing of Claims

Claims 1-19 (canceled).

20. (New) A process for measuring and controlling the circulation of fluids in endoscope channels comprising:

placing at least one endoscope into a tank;

coupling one or more inlet channels of the endoscope to a hermetic chamber having a known volume and one or more valves;

filling the hermetic chamber and valves to a high level position, thereby saturating the tank and inlet channels with a fluid from at least one fluid supply;

controlling and recording a time for a fluid flow under pressure within the hermetic chamber to travel from the high level position to a designated low level position when at least one of the valves is open to at least a respective one of the one or more inlet channels; and

confirming that the fluids are circulating in each portion of each channel of the endoscope, that the at least respective one of the one or more inlet channels are properly coupled to the at least one the valves, and that none of the respective one or more channels are closed.

21. (New) The process in accordance with claim 20, wherein the controlling occurs in a controller comprising a plurality of sensors arranged to detect the emptying of the chamber, and a filtered air compressor is structured and arranged to place the fluid under pressure in the hermetic chamber, and

wherein the controller verifies the known fluid volume and flow rate from a recorded emptying of the hermetic chamber, and uses the recorded fluid volume and flow rate in the confirming.

22. (New) The process in accordance with claim 20,

wherein the controlling and filling of the hermetic chamber comprises:

emptying of the hermetic chamber down to the low level under pressure, wherein a controller controls a filling time in the filling of the chamber up to the high level ensuring the valves, tank and channels of the endoscope are saturated with fluid; and

emptying of the filled hermetic chamber and recording the time for the fluid to reach the low level.

23. (New) The process in accordance with claim 22,

wherein the controller compares the recorded emptying time of the fluid from the high level to the low level in the hermetic chamber to a reference time corresponding to an average time for emptying the chamber under the same pressure through the channel of an endoscope of the same type.

24. (New) The process in accordance with claim 20,

recording a reference time in a controller or in an external database connected to the controller so as to begin to establish a control time.

25. (New) The process in accordance with claim 20, wherein a control time is repeated several times in a same channel of interest, such that an average of the measurements are compared to an independent reference time.

26. (New) The process in accordance with claim 20, wherein a control time is undertaken in one or more steps of a fluid cycle such as cleaning, disinfecting, rinsing, and drying.

27. (New) The process in accordance with claim 20, wherein testing of the hermetic chamber operability comprises:
purging the hermetic chamber and the one or more valves to verify the impermeability of the hermetic chamber and the one or more channel valves coupled thereto,

filling the hermetic chamber to the high level; and
pressurizing the hermetic chamber at a given pressure via the air compressor under control of a sensor; such that a recorded measuring of a pressure drop during a specified period of time is sufficient to diagnose leakage.

28. (New) The process in accordance with claim 20, further comprising testing of the operability of the at least one sensor of the hermetic

chamber, wherein the measuring of time for filling the chamber between the low and high levels is recorded, and compares the recorded time to an independent reference time.

29. (New) The process in accordance with claim 28, wherein when the recorded time is greater or less, respectively, than the independent reference time, a cycle stop and/or an error message is generated.

30. (New) The process in accordance with claim 20, wherein the inlet channels of the endoscope are coupled to valves with connectors, one or more separators are positioned and arranged at the inlet channels common to the air and water channels. so as to separate the flows of the air and water of an insufflation piston of the endoscope;

wherein the separators allows a very slight communication between the air and the water channels preventing not greater than a 30% loss of flow for each of the channels, such that each of the channels of the endoscope are individually coupled to at least one individual injector located in the tank, a long with being coupled to the hermetic chamber via at least one valve.

31. (New) The process in accordance with claim 20, further comprising coupling the injectors of the tank to a tube having an inner cross-section less than 5 mm, such that one end is free.

32. (New) The process in accordance with claim 31,

wherein the endoscopes are coupled to the injectors by sealing couplings, the sealing couplings provide fluid flow to pass only when the sealing couplings are properly connected to the inlet of the endoscope channel.

33. (New) The process in accordance with claim 21,

wherein the controller is able to control at the same time, the flow of several endoscopes using a plurality of hermetic chambers that have different volumes, as well as to increase the control of flow in sets of channels of the same endoscope having similar diameters.

34. (New) The process in accordance with claim 20, further comprising gathering at least one sample solution, wherein the endoscope channels are not disconnected at the end of a disinfecting cycle, and after selecting to open one or more injection valves, the sampling solution is injected through the connection valve using a pump or a syringe, such that the sampling solution is injected through the one or more channels of the endoscope, of which, the sampling solution is then collected at the end of the one or more channels end.

35. (New) A device controlling the circulation of fluid in endoscope channels comprising:

at least one endoscope positioned into at least one tank, wherein at least one inlet channel of the endoscope are coupled to one or more valves with one or more connectors; and

a fluid saturates the tank and the inlet channels from at least one fluid supply in fluid communication with at least one circulation pump, at least one hermetic chamber having a known volume and the one or more valves, such that the hermetic chamber and the valves are completely filled with the fluid; and

a controller controls and records the fluid within the hermetic chamber of filling and emptying of the hermetic chamber with one or more sensors detecting a high level and a low level of the fluid, such that the fluid is under a pressure in the hermetic chamber controlled by the controller via a filtered air compressor having one or more sensors,

wherein the controller verifying a known fluid volume and a flow rate from the recorded emptying of the hermetic chamber, whereby the controller determines from the recorded fluid volume and flow rate, that fluids circulated in a each portion of each the channel of the endoscope, as well as determining the inlet channels are coupled to the valves, and the channels are not closed.

36. (New) The device in accordance with claim 35,

wherein at least one valve is coupled to the tank or to a cap of the tank, so as to allow the fluid of the hermetic chamber to return to the tank.

37. (New) The device in accordance with claim 35,

at least one connection pipe between the connecting valve and the tank or the cap having at least one quick connector such that a solution is injected in the chamber, wherein the solution is collected after opening of one

or more injection valves connected to an end of the one or more endoscope channels.

38. (New) The device in accordance with claim 35,
at least one injection pump connected to the hermetic chamber so as to fill the tank with a controlled quantity of the fluid using at least two sensors, wherein the fluid composition causes a drying effect that is injected in each of the channels by pressurizing the chamber with the air compressor along with opening at least one the injection valves.

39. (New) The device in accordance with claim 35,
wherein the chamber has a volume at least equal to the total volume of the largest of the channels of the endoscope connected thereto.